In the mid-1970s, the US medical community was shocked by an article published in *Nutrition Today* under the title 'The Skeleton in the Hospital Closet'. "I suspect that one of the largest pockets of unrecognized malnutrition in America exists, not in rural slums or urban ghettos, but in the private rooms and wards of our big city hospitals," wrote the author, Charles E. Butterworth, who pointed the finger of blame at the medical system itself: "Many undesirable practices concerning the nutritional care of hospitalized patients have their roots in long-standing neglect of nutrition in medical education and in health care delivery systems," he wrote.

Medicine, including oncology, has evolved significantly over the past 50 years, but when it comes nutrition, not least for patients with cancer, improvements in how we manage patients has been limited. We do now have professional organisations such as ESPEN (European Society for Clinical Nutrition and Metabolism), set up in 1980 for promoting research and education, which has issued multiple guidelines including several relating specifically to surgical and cancer patients. Europe's professional oncology organisations have also begun to recognise the importance of nutritional status and care. These topics are included in the core curriculum for surgical oncology developed by ESSO, the European cancer surgeons' society. ESMO, the society for medical oncology, has published a *Handbook on Nutrition and Cancer.* Courses and webinars are now more available for cancer professionals who seek them out.

Yet the impact of this available knowledge seems still to be quite limited when it comes to what actually happens in clinical practice.

An Italian study into the Prevalence of malnutrition in patients at first medical oncology visit, published in 2017, notes that "studies from Germany, France, Spain, and Brazil reported malnutrition prevalence [in cancer patients] ranging from 25% to over 70% based on nutritional assessments," and that, "Even when malnutrition risk is recognized, it may not be adequately addressed. Hospital studies in Europe showed that only 1 in 3 cancer patients at risk of malnutrition in fact received nutritional support."

This chimes with figures for Poland that were recently presented by Przemysław Matras, President of the Polish Society of Clinical Nutrition, which show one in three patients is malnourished upon being admitted to a hospital ward, and that nutritional status deteriorates in an additional 20–30% of patients during hospitalisation.

A hidden problem and a low priority

One problem is that malnutrition is not always evident in a patient's appearance, Matras tells *Cancerworld*. Indeed, is it quite common for people who are overweight or obese to also suffer from being undernourished, and in such cases, advising them to lose weight before surgery may be counterproductive.

> "I have useless fat tissue and a shortage of muscle tissue, which is needed for energy consumption"

This was the advice given to Marian, diagnosed with prostate cancer at the age of 70. Measuring 175 cm in height, and weighing 95 kg, he was advised to cut back on the size of his portions before his operation. A subsequent body composition analysis revealed that, while his weight was too high, he was lacking in muscle, says Marian, "because my body obtains protein from them during periods

of hunger… So I have useless fat tissue and a shortage of muscle tissue, which is needed for energy consumption."

Obese people who lack muscle will lose even more during a period of fasting, explains Matras, because, in illness, the body does not use fat tissue as an energy source, but depletes protein from weak muscle reserves. "If someone assumes that every patient who doesn't fit on a hospital bed could benefit from fasting, they may not notice when that patient lacks the strength to get up," he says. He comments wryly that everyone then wonders why a patient who was scheduled for surgery without a nutritional status assessment goes on to experience wound dehiscence, necessitating a repeat procedure, or why it is more difficult to wake them from anaesthesia, or the wound doesn't heal, pressure sores develop, or chemotherapy fails to yield results and has to be prolonged.

The sense of urgency that accompanies a cancer diagnosis can also overshadow other important aspects of patient care, says Paweł Kabata, a nutritional consultant at the General Surgery Department of the Provincial Oncology Centre in Gdańsk. "In oncologic surgery, the principle is still to remove the cancer as quickly as possible, without considering the patient's nutritional status." Patients' families will often put pressure on surgeons to operate immediately, even when the patient has been losing a lot of weight, he says. All too few surgeons take the time to try to convince the families of the benefits of a short delay to feed the patient up – with liquid nutritional supplements if necessary – to build up their strength.

Matras shares Kabata's concerns about the number of doctors who still "have no qualms about proposing major surgery to chronically malnourished individuals," and says that, in many cases it could make sense to postpone surgery for two to three weeks. This is broadly in line with the guidelines published by ESPEN, which recommend "7–14 days of delayed surgery with nutritional replenishment for cancer patients with weight loss of >10% in the past six months, BMI <18.5 kg/m^2, and albumin <30 g/L or NRS [nutritional risk score] >5."

> "I didn't realise that, at my normal weight of 60 kg, an 8% drop poses a risk for complications"

Knowing this information could save people like Anna, a cancer patient from Warsaw, from unnecessary complications from cancer surgery. Anna had felt really good about having lost 5 kg from her baseline weight in the run up to her cancer diagnosis, "But I didn't realise that, at my normal weight of 60 kg, an 8% drop poses a risk for complications. The doctor didn't warn me. The incision site split, and I had to be stitched up twice."

As Kabata points out, while a tumour is unlikely to grow significantly over a couple of weeks, taking that time to improve the patient's nutritional status could help them tolerate more intensive treatment. Malnourished patients, he says, tend to be prescribed lower medication doses and suboptimal treatment, which can lead to worse outcomes. Added to which they are not only more likely to suffer complications from surgery, but will also suffer more toxic effects from chemotherapy and radiation therapy.

He wishes oncologists could learn from sports doctors, who have become experts at preparing athletes for the rigours, for instance, of long-distance running. "After all, a major surgical operation is a tremendous energy expenditure for the body," says Kabata. "It leads to extensive tissue damage, causing increased inflammation, which in turn intensifies and drives metabolism, resulting in

increased consumption of building blocks and energy, and also an increased demand for these nutrients."

Nutrition on the wards

Ensuring the right nutrition during and after treatment is at least as important to optimise patient outcomes and wellbeing, but here too it seems many hospitals and oncology inpatient units are falling down, as noted in the Italian study.

During his treatment for advanced testicular cancer, Szymon Chrostowski, who now chairs Wygrajmy Zdrowie, a Polish cancer advocacy organisation ("Let's Win Health"), lost several kilos due to the intense nausea and vomiting induced by the chemo. The anti-emetics he was prescribed had little effect, and while the nurses did the checks the doctors asked of them, no-one ever asked him about whether he was managing to eat, he recalls.

"Patients on the oncology urology ward basically nourished themselves however they could, or rather, they were fasting," says Chrostowski. Difficulties with appetite and keeping food down were exacerbated by widespread misinformation about the ideal diet for patients in their condition. "I heard so many superstitions during that time: don't eat anything for four days before the surgery, don't eat anything for four days after the surgery, drink only water; you have to starve the cancer."

One clear problem here is that none of the hospital staff felt responsible for nutritional issues. According to some service guidelines, one dietetics specialist should be responsible for 50 patients; however, hospital administrations may not consider this a priority for their stretched budgets.

> Nurses did the checks the doctors asked of them, but no-one ever asked him about whether he was managing to eat

Furthermore, in Poland at least, such nutritionists as are employed in hospital settings usually work in the kitchen, counting the calories in the meals served, rather than being present on the wards, where they could get a feel for what patients are actually eating, and could offer advice. Graduates qualified in dietetics say they have a hard time finding employment in hospitals, not because of lack of funding, but because management does not recognise their value, and they struggle to find common ground with doctors.

They feel that, until oncology professionals start understanding the importance of nutrition, they will continue to be treated as intruders in oncology wards – a cross between a cook and a waiter.

The failure to prioritise good nutrition can also be seen in the way mealtimes are routinely disrupted by tests and procedures that, with a bit of effort, could be done at other times of day. A patient may receive lunch in bed but, just as it arrives, they are called in for an examination that lasts an hour or so, and by the time they return, their food has already been returned to the kitchen. Or an elderly patient is referred for successive diagnostic tests, each of which require fasting; but they cannot all be scheduled for the same day, they can only be done from Monday to Friday, starting at noon. Widespread fasting in oncology hospitals sometimes comes down to poor scheduling.

The bigger problem is that, if no-one feels responsible for monitoring and supporting patient nutrition, the problem is not picked up and remedied, and the patient starves.

The quality of hospital food also leaves a lot to be desired, says Adrian Kowalik, a surgeon at the Regional Hospital in Racibórz, who runs a community-based service supporting patients at home who are receiving specialist nutrition, including enteral and parenteral feeding. “Unfortunately, in some oncology wards and hospices, patients are still being fed soups through the blender,” – an outdated medical practice from half a century ago, he says.

Nutrition in the home

A lack of advice and information from oncology care teams means that families, desperate to do their best for patient going through, or recovering from, cancer treatment, also miss opportunities to build up their strength.

Kowalik says he constantly sees how patients are fed with puréed, easily digestible meals, rather than nutritionally rich diets.

> As no-one tells them otherwise, patients and their families wrongly assume this weight loss is an inevitable consequence of cancer

Families believe that cream of carrot soup is healthy, and the patient will gain strength from it – while in reality, such homemade meals are low in calories and contain few nutrients. “It covers 20, at most 30% of the nutritional requirements,” says Matras. Yet families often insist that it’s healthier than so-called artificial supplements, and patients continue to lose weight. And because no-one tells them otherwise, patients and their families then wrongly assume this weight loss is an inevitable consequence of cancer.

“Strengthening infusions, that’s Poland’s favourite nutritional therapy,” Kowalik quips. That means water, salt, and glucose – at most, a few dozen calories, which is definitely too little for malnourished patients being discharged from the wards. He asked doctors in his area to refer patients needing nutritional advice to his clinic, but he says the response has been quite limited.

Without access to professional dietary counselling, people resort to the traditional ways they were brought up with, or they look online. “Cancer diet” has become a highly searched keyword; much of the advice found there lacks evidence and is potentially harmful. Maria Brzegowy, a dietician from Kraków, shares a recent example: “A patient came to me after exhaustive breast cancer treatment. She was bald, thin, with a long list of tests and results indicating food intolerances to almost all foods. Via a series of computerised tests, someone had deceived her into believing that in order to beat cancer, she couldn’t eat normally. She didn’t allow me to create any sensible diet, and what’s worse, she never returned.”

When patients lose faith in conventional medical care they becomes more susceptible to all sort of influences. Chrostowski remembers the various bits of advice he received when he was being treated for cancer; they included taking mega-doses of vitamin C, ketogenic (low-carb) diets, and various fasting methods or avoiding sugar. The rationale behind most of these is that it starves the cancer – it doesn’t, but it does starve the patient of energy at a time when they need all they can get.

“Patients are afraid of carbohydrates,” says Brzegowy, but we advise them to have custards, puddings, and high-calorie desserts, which are easily digestible.” It is even possible to make them

from liquid nutritional supplements, which now come in flavours tailored to the preferences of oncology patients, with ingredients such as ginger to alleviate nausea, derivatives of hot pepper, or cooling menthol – they can also be frozen to be enjoyed like ice cream.

She cautions, however, against a tendency she feels is widespread in oncology, to offer a blanket advice all patients to stick to foods that are bland and easy to digest, which would exclude many spices, fruits, and vegetables, and is "illogical," she says, if someone doesn't have any gastrointestinal problems. While dietary restrictions might be advisable for patients with certain types of cancer or after extensive surgeries – as defined for instance in the ESPEN guidelines – most cancer patients should be recommended to have well-rounded meals.

Helping patients get good nourishment often takes more than a good knowledge of their dietary needs, however. Patients' appetites may be severely affected not just by the toxic effects of cancer treatments, but also by the disease itself, particularly at advanced stages. In these circumstances, eating can become a point of stress and confrontation between patients and family members, who are trying to do 'the right thing'. A family-centred nutrition intervention described in the box below, offers a useful tool for clinicians support patients and families to navigate this tension.

How can oncology teams do better?

Improving the level of attention given to supporting the nutritional status of cancer patients needs to start at medical school, says Matras, who teaches at the Medical University of Lublin. "My dream is to introduce a separate course on clinical nutrition in the medical curriculum," he says. "For now, we [at Lublin] have managed to secure five hours of lectures during surgery, neurology, and paediatrics classes."

Across the entire country of Poland, only four medical universities, out of nine state institutions, and several private ones, include nutritional treatment in the schedules of medical faculties.

Then there is the question of how to ensure that oncology services implement the many guidelines now available on cancer and nutrition, including clear lines of responsibility. As Stanisław Kłęk, director of ESPEN's Life Long Learning programme, points out, "Our recommendations and guidelines do not have legal force. Doctors are not required to follow them, and there are no penalties for not adhering to them. It is a matter of goodwill, imagination, and ethics to implement these guidelines into clinical practice."

It is also a matter of effective multiprofessional working, good governance and quality control. Kłęk, who is the lead surgical oncologist at the Jagiellonian University Medical College in Kraków, mentions the fragmentation of modern medicine as one of the challenges, with tasks being divided across so many roles. "Oncologists do not address the complications of treatment in their patients," he says, "so they do not witness the effects of malnutrition firsthand."

Kabata argues that improving the way nutrition is handled within cancer services requires the field of medicine to recognise that attending to a patient's nutritional status is an important and integral part of treatment. "This truth has not yet reached most people, even though we are in the 21st century." He relates that, when doctors from other departments at the oncology centre approach him, as an expert in this field, and say, "First, improve this patient's nutritional status, and then we will start treating them," he responds by saying, "I'm already treating them by providing nutrition" – but they can't seem to comprehend it, he says.

Illustration by Sara Corsi